

KOCHENOV, M.I.; CHAMAN, V.S.

High-production automatic unit for checking and sorting piston  
pins. Stan.i instr. 35 no.8:15-18 Ag '64.

(MIRA 17:10)

KOCHENOV, M.I.; CHAMAN, V.S.

Automatic device for repeated measurements of linear dimensions.  
Izm. tekhn. no. 12:7-10 D '64. (MIRA 18:4)

Chaman, Ye. S.

Cand Chem Sci

Dissertation: "Investigation in the Field of Methylated Xanthines. 8-Substituted  
Derivatives of 1, 3, 7- Trimethyl-Xanthine."

18 May 49

All-Union Sci Res Chemicopharmaceutical Inst imeni Sergo Ordzhonikidze.

**SO Vecheryaya Moskva**  
**Sum 71**

CHAMAN, ES.

Chemical Abst.  
Vol. 48 No. 5  
Mar. 10, 1954  
Organic Chemistry

*Chem*

The 8-substituted derivatives of methylated xanthines.  
II. Synthesis of 8-caffeinepropionic acid. E. S. Golovchinskaya and E. S. Chaman. J. Gen. Chem. U.S.S.R. 22, 593-8 (1952) (Engl. translation). III. (Aminomethyl)- and (aminoethyl) caffeine and their alkylated derivatives. Ibid. 599-603. See C.A. 47, 5360a. H. L. H.

CHAMAN, E. S.

Chemical Abat.  
Vol. 48 No; 8  
Apr. 25, 1954  
Organic Chemistry

② *chem* 4  
Amino acids. I. Synthesis of  $\beta$ -alanine. I. L. Lur's and  
E. S. Chaman. *J. Gen. Chem. (U.S.S.R.)* 22, 1873-4  
(1953) (Engl. translation).—See C.A. 47, 8648h.  
H. L. H.

9-2-54  
JP

CHAMAN, E. S.

Chemical Abst.  
Vol. 48 No. 9  
May 10, 1954  
Organic Chemistry

(3) Chem  
/ Amino acids. II. Catalytic reduction of esters of by  
droxyimino carboxylic acids. S. I. Lurie, G. A. Kargin,  
and E. S. Chaman. J. Gen. Chem. U.S.S.R. 22, 2003-7  
(1952) (Engl. translation).—See C.A. 47, 8049b.  
H. L. H.

CHAMAN, Ye. S.

USSR/Chemistry - Pharmaceuticals

Mar 52

"8-Substituted Derivatives of Methylated Xanthines. III. Aminomethyl- and Aminoethyl Caffeines and Their Alkylated Derivatives," Ye. S. Golovchinskaya, Ye. S. Chaman, All-Union Sci Res Chem-Pharm Inst Imeni S. Ordzhonikidze

"Zhur Obshch Khim" Vol XXII, No 3, pp 535-540

Gives a method for producing 8-aminomethyl caffeine and its alkylated derivs from 8-chloromethyl caffeine. Establishes the conditions under which the amide of  $\beta$ -(caffeine-8)-propionic acid will be transformed into 8-aminoethyl caffeine. The following compds were synthesized: 8-aminomethyl

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USSR/Chemistry - Pharmaceuticals (Contd)

Mar 52

caffeine, 8-dimethylaminomethyl caffeine, 8-diethylaminomethyl caffeine, 8-aminoethyl caffeine, 8-di-methylaminoethyl caffeine, the hydrochlorides of these compds, 8-phenylaminomethyl caffeine, and 8-benzylidene aminoethyl caffeine.

209751

Chemical Abst.  
Vol. 48, No. 4  
Feb. 25, 1954  
Organic Chemistry

8-Substituted derivatives of methylated xanthines. IV.  
8-(3-Hydroxypropyl)caffeine. E. S. Golovchinskaya and  
E. S. Chasman (S. Orlzhonitskaya All-Union Chem.-Pharm.  
Inst., Moscow). Zhur. Obshchei Khim. 22, 2220-5 (1952);  
cf. C.A. 47, 5300a.—Heating 30 g. caffeine-8-propionic acid,  
16 g.  $\text{SOCl}_2$ , and 200 ml.  $\text{C}_2\text{H}_5$  0.5 hr. after soln., treating  
the soln. with 28 g.  $\text{PhCH}_2\text{SH}$  and, after 5-10 min., with  
30 ml. pyridine, let stand 24 hrs., filtering, and concg. the  
filtrate, gave 81.6% benzyl caffeine-8-thiolpropionate, m.  
126-7°. This (5 g.) in dry dioxane stirred 2 hrs. with 30 g.  
Raney Ni gave 55% 8-(3-hydroxypropyl)caffeine (I), m.  
88-91° (from EtOAc or  $\text{C}_6\text{H}_6$ ); the mother liquor yields  
crystals, m. 188-7°, identified as 8-ethylcaffeine. The re-  
sult is similar with 80% EtOH as the solvent. No alde-  
hyde was obtained. I refluxed with  $\text{Ac}_2\text{O}$  1.5 hrs. gave the  
acetate, m. 138-8° (from EtOAc). Heating I with  $\text{SOCl}_2$  in  
 $\text{C}_6\text{H}_6$  6 hrs. gave 62% 8-(3-chloropropyl)caffeine (II), m.  
117-18° (from EtOAc), which (3 g.) with 30 ml.  $\text{Et}_3\text{NH}$  in a  
sealed tube at 120-30° gave 66% the 8- $\text{Et}_3\text{N}(\text{CH}_2)_3$  analog,  
isolated as the  $\text{HCl}$  salt, m. 238-8°; free base, m. 72-4°  
(from pentane). Heating II with Raney Ni in KOH-80%  
EtOH 4 hrs. at 100° gave 8-propylcaffeine, m. 116-17°.  
II refluxed 4 hrs. with EtONa in EtOH gave a product  
(III), m. 172-4°, apparently  $\text{C}_{11}\text{H}_{15}\text{O}_2\text{N}_4$ , and a small amt.  
of the expected 8- $\text{EtO}(\text{CH}_2)_3$  compd., m. 82-4° (from  $\text{CCl}_4$ -  
pentane), which was not analytically pure. III may  
possibly be a cyclopropyl deriv. V. Desulfurizing reduc-  
tion of the esters of caffeine-8-carboethioic acid. *Ibid.*  
2225-9.—Desulfurizing reduction of esters of caffeine-8-car-  
boethioic acid with Raney Ni yields primary alcs. and is  
accompanied by formation of compds. which are shortened  
by 1 C atom in the side chain. Caffeine derivs. with an  
aldehyde group in the 8-position are reduced to alcs. in



part, by Raney Ni and in part are decarbonylated. Heating 5 g. *caffeine-8-carboethioic acid* with 6 ml.  $\text{SOCl}_2$  6 hrs. at  $82-85^\circ$  yields 2.5 g. *acyl chloride*, m.  $168-73^\circ$  (from  $\text{C}_6\text{H}_6$ ). This (1.5 g.) allowed to react with 2.2 g.  $\text{PhCH}_2\text{SH}$  in  $\text{C}_6\text{H}_6$  in the presence of 0.7 g. dry pyridine over 48 hrs. at room temp. gave 50% *benzyl 8-caffeine-8-carboethioic acid*, m.  $175-6^\circ$ ; sol. in ROH, but sparingly sol. in  $\text{Et}_2\text{O}$ . This (1.5 g.) in 15 ml. dry dioxane stirred 2 hrs. at room temp. with 18 g. Raney Ni gave 0.1 g. *8-(hydroxymethyl)caffeine methyl analog*, m.  $208-11^\circ$  (from  $\text{EtOAc}$ ); in addn., some 0.5 g. *caffeine (II)*, m.  $227-30^\circ$ , is obtained from the  $\text{CHCl}_3$  washes. Running the reaction in 80% EtOH increases yield of II (89% after 5 hrs. at reflux) and no I is isolated. I is unaffected by Raney Ni under these conditions. Stirring 1 g. *caffeine-8-carboxaldehyde* in dioxane with 12 g. Raney Ni 2.5 hrs. at room temp. gave 40% I, m.  $223-4^\circ$  (from EtOH) and an unstated yield of II. Thus the reductive cleavage of the thiol ester is a 2-step event with formation of the aldehyde, followed by cleavage of the latter into II and I.

G. M. Kosolapoff

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CHAMAN, YE. S.

USSR/Chemistry - Alkaloids

Dec 52

"8-Substituted Derivatives of Methylated Xanthines. (V. Desulfurizing Reduction of the Thiolic Ester of Caffeine-8-Carboxylic Acid," Ye. S. Golovchinskaya and Ye. S. Chaman, All-Union Sci-Res Chemicopharm Inst im S. Ordzhonikidze.

Zhur Obshch Khim, Vol 22, No 12, pp 2225-2229

The desulfurizing reduction of the thiolic esters of caffeine-8-carboxylic acids to primary alcs, over Ni, was accompanied by the formation of compds having one less carbon atom in a side chain. The

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derivatives of caffeine, having an aldehyde substituted in the 8 position, partly converted to alcohols by the action of Raney Ni, and partly split off one carbon link at the expense of the carbonyl group.

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V 47  
P-53

Chemistry

Amide acid series. V. Condensation reaction of aldehydes and ketones with acrylonitrile. S. I. Lur's R. S. Chumak, and G. A. Raviel. Zhur. Obshch. Khim. 1963, 39, 1883; cf. 37, 1253. — AcPh does not react with hippuric acid under conditions of the Etchemeyer reaction. A NO<sub>2</sub> group introduced into AcPh activates the CO group and the reaction becomes possible. In formation of oxazolones in the condensation of aldehydes or ketones with acrylonitrile the use of NaHCO<sub>3</sub> gave at least as good yields as did the use of K<sub>2</sub>CO<sub>3</sub>. AcPh, 17.25 g; dry K<sub>2</sub>CO<sub>3</sub> gave a vigorous, but delayed reaction; after 24 hrs. the mass was ground with H<sub>2</sub>O and dil. AcOH yielding 83.70% 2-phenyl-4-benzylidene-5-oxazolone, m. 102.5–7°. Mixing 14.75 g. acetic acid, 8.6 g. K<sub>2</sub>CO<sub>3</sub>, 20.5 g. BzH and 40 ml. AcO led to a mild temp. rise, after which the mixt. was kept 1 hr. at 40°, 1 hr. at 120°, and 1 hr. at 130–35°. The usual treatment gave 85% 2-methyl-4-benzylidene-5-oxazolone, m. 140–4°. Similar reaction gave 80–85% 2-phenyl-4-(p-methoxybenzylidene)-5-oxazolone, m. 120–3°, when NaHCO<sub>3</sub> was used and the temp. was kept at 40°. Reaction of 10 g. 1 with 8.5 g. p-ONC<sub>6</sub>H<sub>4</sub>CHO, 4.7 g. NaHCO<sub>3</sub> and 20 ml. AcO at 50–55° gave 82% 2-phenyl-4-(p-nitrobenzylidene)-5-oxazolone, m. 100–1°. Heating 5 g. acetic acid, 0.5 g. p-ONC<sub>6</sub>H<sub>4</sub>CHO, 3.72 g. NaHCO<sub>3</sub> and 9.5 ml. AcO 2 hrs. at 55–60°, followed by standing overnight, gave 2-methyl-4-(p-nitrobenzylidene)-5-oxazolone, m. 110–12° (from CH<sub>2</sub>).

Inst. Biol. & Med. Chemistry, AMS 5555

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CHAMIAN, E. S.

1.  $\alpha$ -Substituted  $\alpha$ -amino acids series. I. Synthesis and properties of the simplest  $\alpha$ -hydroxy- $\alpha$ -acylamino carboxylic acids

R. S. Chaman and M. M. Shemyakin. *Zhur. Obshch. Khim.* 25, 1280-5 (1955); cf. *C.A.* 44, 1096d. A characteristic of *N*-acylated  $\alpha$ -hydroxy- $\alpha$ -amino acids is their ability to be readily hydrolyzed to the corresponding oxo acid and amide. Heating hippuric acid with  $\text{Ac}_2\text{O}$  gave 2-phenyl-2-oxazolin-5-one (I). Heating *N*-benzoyl- $\alpha$ -alanine with 6 parts  $\text{Ac}_2\text{O}$  0.5 hr. at 70-80° gave 80% 4-methyl-2-phenyl-5-oxazolinone (II),  $b_p$  103-12°. 4-Et analog (III), m. 48-50°,  $b_p$  114-17°, prepd. in 90% as above, with aq.  $\text{NH}_4\text{OH}$  gave  $\text{PrCH}(\text{NH}_2)\text{CONH}_2$ , m. 198-200°. To 12.8 g. I in dry  $(\text{CH}_2\text{Cl})_2$  at 4-7° was slowly added 8.0 g.  $\text{Br}_2$  in  $(\text{CH}_2\text{Cl})_2$  yielding a ppt. of 2-phenyl-6-oxazolinone HBr salt, which after sepn. and soln. in 5%  $\text{NaOH}$  gave on acidification 40% hippuric acid. The  $(\text{CH}_2\text{Cl})_2$  soln. stirred 2-3 hrs. with  $\text{H}_2\text{O}$  gave 35% *N*-benzoyl-hydroxyglycine, m. 200-2° (from dioxane- $\text{CHCl}_3$ ). If the  $(\text{CH}_2\text{Cl})_2$  soln. obtained above is treated with  $\text{EtONa-EtOH}$ , there is formed *N*-benzoylthoxyglycine Et ester,  $b_p$  130-5°, m. 69-71°. Similarly bromination of II gave 33% *N*-benzoyl- $\alpha$ -alanine, while the org. layer stirred with  $\text{H}_2\text{O}$  gave 27% *N*-benzoyl- $\alpha$ -hydroxy- $\alpha$ -alanine, m. 103-5°. III similarly gave 28% *N*-benzoyl- $\alpha$ -hydroxy- $\alpha$ -aminobutyric acid, m. 98-9° and 24%  $\text{PrCH}(\text{NH}_2)\text{CO}_2\text{H}$ . Stirring *N*-benzoylhydroxyglycine 2-3 min. with 8%  $\text{NaHCO}_3$  gave  $\text{BzNH}_2$  and glyoxylic acid (identified by 2,4-dinitrophenylhydrazine, m. 183-90°, and by aminoguanidine deriv., m. 141-2°); heating with aq. alc.  $\text{HCl}$  gave the same result. *N*-Benzoyl- $\alpha$ -hydroxy- $\alpha$ -alanine and *N*-benzoyl- $\alpha$ -hydroxy- $\alpha$ -aminobutyric acid are similarly rapidly hydrolyzed by  $\text{NaHCO}_3$  and by  $\text{HCl}$ . Also in *J. Gen. Chem. U.S.S.R.* 25, 1300-12 (1955) (Engl. translation). G. M. Kosolapoff

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*N*- $\alpha$ -Substituted  $\gamma$ -amino acids. II. Structure and properties of the product of reaction of phenacetic acid with acetic anhydride. S. I. Lur'e, B. S. Chaman, and M. M. Shenyakin. *Zhur. Obshch. Khim.* 1955, 31, 1799-1802 (1955); cf. *C.A.* 50, 4914a. —  $\text{Ac}_2\text{O}$  and  $\text{PhCH}_2\text{CONHCH}_2\text{CO}_2\text{H}$  is 2-benzylidene-3-acetyl-5-oxazolidinone (I). I in  $(\text{CH}_3\text{Cl})_2$  at 7-9° with Br gave a ppt. of 2-methyl-3-oxazolin-5-one-HBr, which ground with  $\text{H}_2\text{O}$  gave 24%  $\text{AcNHCH}_2\text{CO}_2\text{H}$  (II), m. 200-3°; treatment with  $\text{PhNH}_2$  gave  $\text{AcNHCH}_2\text{CONHPh}$ , m. 191-3°. The residual sole, treated with concd.  $\text{NH}_4\text{OH}$  gave 59%  $\text{PhCH}_2\text{CONH}_2$ , m. 143-5°. Heating 4 g. I with 2.5 g.  $\text{BeH}$ , 2.5 g.  $\text{K}_2\text{CO}_3$ , and 12 ml.  $\text{Ac}_2\text{O}$  2 hrs. at 100-10° and quenching the mixt. in ice gave 2-methyl-4-benzylidene-3-oxazolin-5-one, m. 149-52°, identical with that prepd. from  $\text{BzH}$  and II (cf. Lur'e, *et al.*, *C.A.* 47, 12315b); the mother liquor gave  $\alpha$ -phenylcinnamic acid, m. 170-2°. Possible paths of bromination of I are discussed.

G. M. Kosolapoff

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 Synthesis of substituted oxazolidinones and their derivatives. M. M. Shemyakin, B. B. Gerasimov, and L. I. Denisov. *Doklady Akad. Nauk SSSR*, 191, 675 (1958).  
 To 5 g. 2-phenyl-5-oxazolidinone (I) in dry  $(CH_2Cl)_2$  was added at 5° 2.5 g. dry  $Li$  in  $(CH_2Cl)_2$ ; the ppt. of  $LiCl$  rapidly sep'd. and the filtrate treated with dry ROH 1 hr. at room temp. gave the following:  $BzNHCH(OMe)CO_2Me$ , m. 88-7° (from Et<sub>2</sub>O);  $BzNHCH(OMe)CO_2Et$ , m. 80-71° (from 70% EtOH);  $BzNHCH(OPr)CO_2Pr$ , m. 64-5° (from 70% EtOH);  $BzNHCH(OC_2H_5)CO_2C_2H_5$ , m. 82-3° (from MeOH);  $BzNHCH(OCMe_2)CO_2CHMe_2$ , m. 80-1° (from 70% EtOH);  $BzNHCH(OCMe_2)CO_2CMe_2$ , (II), m. 135-7° (from MeOH);  $BzNHCH(OCMe_2)CO_2CH_2Ph$ , m. 95-6° (from EtOH);  $BzNHCH(OCMe_2)CO_2CMe_2$ , m. 118-19° (from MeOH). The reaction with  $n$ -BuOH gave  $BzNHCH(OH)CO_2Ph$ , m. 169-60° (from MeOH). If after the bromination, the reaction with MeOH is run at 18-20° 5 hrs. the product from 4-methyl-2-phenyl-5-oxazolidinone is  $BzNHCH(OMe)CO_2Me$ , m. 114-15° (from MeOH-Et<sub>2</sub>O). The procedure outlined above with I applied to abs. Me<sub>2</sub>COH gave 23% II and 9%  $BzNHCH(OCMe_2)CO_2H.H_2O$  (III), m. 103-4° (from 70% EtOH), along with 39%  $BzNHCH(OH)CO_2CMe_2$ , m. 125-6° (from 70% MeOH); if use is made of Me<sub>2</sub>COH contg. 3.5% moisture, there is obtained 48% III. III on further heating solidifies at 140° and melts at 201° (decomp.). The brominated I, prep'd. as above, treated at 0° with 0.27 g. H<sub>2</sub>O and 6 ml. dioxane, followed by 8.4 g. PhCH<sub>2</sub>OH 1.5 hrs. at 20°, gave  $BzNHCH(CO_2H)OCH_2Ph$ , m. 123-5° (from 70% EtOH). Bromination of I followed by reaction with 1.7 g. PhCH<sub>2</sub>OH 1 hr. at 0° gave  $BzNHCH(OH)CO_2CH_2Ph$ , 31%, m. 125-6° (from 70% EtOH); if the mixt. is then treated with PhNH<sub>2</sub>, (cont.)

1. Chlen. ~~Terminology~~ AN SSSR (for Shemyakin). 2. Institut Biologii  
 Chlen. i meditsinskoy khimii Akademii meditsinskikh  
 nauk SSSR. (Aminy Amino)

**SHENYARIN, M. CHANAN, E.**  
 2 hrs. at 0° there is formed 20%  $BzNHCH(NHPh)CO_2CH_2Ph$ , m. 163-7° (from MeOH); piperidine gave 3%  $BzNHCH(NC_4H_9)CO_2CH_2Ph$ , m. 78-9° (from 70% MeOH).  
 The use of  $Me_2COH$  and  $PhNH_2$  similarly gave 68%  $BzNHCH(NHPh)CO_2CMe_3$ , m. 155-6°, while  $PhNH_2$  alone gave 76%  $BzNHCH(NHPh)CONHPh$ , m. 163-4° (from MeOH).  
 Use of  $PhCH_2SH$  gave 77%  $BzNHCH(SCH_2Ph)COSCH_2Ph$ , m. 163-4° (from MeOH).  
 G. M. Kosolapoff

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 1237



2/ <sup>7</sup> Synthesis of peptides containing the residues of  $\alpha$ -hydroxy- $\alpha$ -amino acids. M. M. Shemyakin, G. A. Ravdel, and E. S. Chaman. *Proc. Acad. Sci. U.S.S.R., Sect. Chem.* 107, 185-8 (1956) (Engl. translation).—See C.A. 50, 14528j. B. M. R.

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**SHEMYAKIN, M.M.; RAYDEL', G.A.; CHAMAN, Ye.S.**

**Synthesis of peptides containing an  $\alpha$ -oxy- $\alpha$ -aminoacid residue.**  
**Dokl.AN SSSR 107 no.5:706-709 Ap '56. (MLRA 9:8)**

**1. Chlen-korrespondent AN SSSR (for Shemyakin); 2. Institut biologicheskoy i meditsinskoy khimii Akademii meditsinskikh nauk SSSR.**  
**(Peptides)**

Chaman, Ye. S.

SHENYAKIN, M.M.; RABINEL', G.A.; CHAMAN, Ye.S.; SHVETSOV, Yu.B.; VINOGRADOVA, Ye.I.

Synthesis of racemic sarkomycin. Izv. AN SSSR. Otd. khim. nauk  
no.8:1007 Ag '57. (MIRA 11:2)

1. Institut biologicheskoy i meditsinskoy khimii Akademii meditsin-  
skikh nauk SSSR.

(Sarkomycin)

SHERMYAKIN, M.M.; SHCHUKINA, L.A.; VINOGRADOVA, Ye.I.; KOLOSOV, M.N.; VDOVINA, E.G.; KARAPET'YAN, M.G.; RODIONOV, V.Ya.; RAVINEL', G.A.; SHVETSOV, Yu.B., BANDAS, E.M.; CHAMAN, Ye.S.; YERMOLAYEV, K.M.; SEMKIN, Ye.P.

Research data on sarkomycin and its analogues. Part 1: Synthesis of dihydrosarkomycin and its antipode. Zhur. ob. khim. 27 no.3:742-748  
Mr '57. (MIRA 10:6)

1. Institut biologicheskoy i meditsinskoy khimii Akademii meditsinskikh nauk SSSR.

(Sarkomycin)

Initial stages of synthesis of tetracyclines. M. M. Shemyakin, M. N. Kolosov, M. G. Karapet'yan, and E. S. Chaman. *Doklady Akad. Nauk S.S.S.R.* 112, 689-72 (1957). Initial steps of the syntheses of the tetracycline group of antibiotics are reported. Condensation of 1,4-naphthoquinones with butadiene and its derivs. at 100° gave the following (I) (R, R', R" given): H, MeO, H, 88%, m. 143-4°; MeO, H, H, 91%, m. 92-3° (λ 229 and 336 mμ); AcO, H, H, 91%, m. 113.5-14.5° and 135.5-6.5°. The condensation of 5-methoxynaphthoquinone with CH<sub>2</sub>:CHC(OMe):CH<sub>2</sub> was run in C<sub>6</sub>H<sub>6</sub> under CO, 12 hrs. at 100° yielding 94% mixed isomers which gave 55% I (MeO, MeO, H), m. 144-5° (λ 227 and 338 mμ), and I (MeO, H, MeO), 15%, m. 141-3° (λ 227, 338 mμ), the structures of which were proved by oxidation to the dimethoxyanthraquinones, and hydrolysis to the dihydroxyanthraquinones, identified as the di-Ac derivs., m. 197-8°, and 209-5°, resp. I in C<sub>6</sub>H<sub>6</sub> gradually treated with strong cooling with MeMgI (not over 25% excess) yielded II (R, R' given): H, H, 70%, m. 135-7° (λ 248 and 291 mμ); MeO, H, 12%, m. 194-6° (λ 250 and 317 mμ). I (MeO, MeO, H) gave 2 products: II (MeO, MeO), 12%, m. 191-3°, and IIa, 49%, m. 137.5-8.5°. The structures were proved by conversion to 1,9- and 1,10-hydroxymethoxyhydroanthracenes whose infra-red spectra showed typical chelation of HO with MeO groups. Use of excess MeMgI and reversal of the order of addn. gives III (R and R' given): H, H, m. 160-7° (λ 238, 260, 285, and 297 mμ); H, MeO, 40%, m. 171-2°; MeO, H, 49%, m. 159-40° (λ 272 and 270 mμ). The ketols and the glycols were stable in air in contrast to the I;

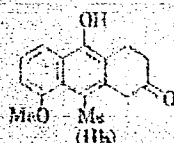
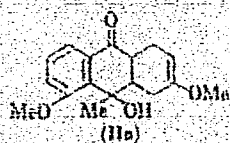
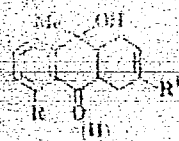
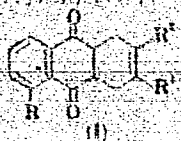
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KOLASOV, M. N. ; KAKA PET'YAN, M. G. + CHAMIAN, E. S.

this indicates a trans structure of the former compds. owing to epimerization of 1 of the asym. centers. The C-10 asym. center can be examd. on the basis of the postulates of Cram and Eliafer (C.A. 48, 2645), which lead to the Me group being cis in respect to the H on C-10a. Thus, II correspond geometrically to the natural tetracycline antibiotics. This is confirmed by acidic treatment of III which leads to their dehydration. Heating with aq. alc. HCl 0.5 hr. at 60° leads to dehydration to the following IV (R and Z given): H, CH:CH, 83%, m. 117-19° (acetate, m. 153-6°; Me ether, m. 97-9° (λ 233, 238, 237 mμ)); Me(I), CH:CH, 90%, m. 115-16° (λ 241, 311, 324 and 330 mμ) (dihydro deriv., m. 107.6-8° (λ 237, 312, 324, and 330 mμ)). III (R = MeO, R' = H) gave 90% V (R = MeO, Z = CH:CH), m. 115-

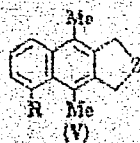
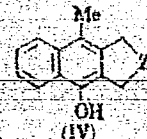
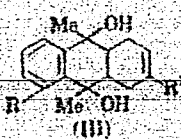
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COLASAY, A. M.

W. H. S. THOMPSON, E.S.



3/4



Kolosov, M.N.; Kara Pet'yan, M.G. & Chumachen, E.S.

16.5° (λ 241, 280, 306, 310, and 353 mμ). The keto alcs. and the glycols, which are really enol derivs., are attacked by HCl under the above conditions yielding the corresponding ketones of the tetrahydroanthracene group. Thus II (R = R' = MeO) gave IV (R = MeO, Z = CH<sub>2</sub>CO), m. 136-7°, while Ia gave IIb, m. 170-3°. III (R = H, R' = MeO) gave 94% IV (R = H, Z = CH<sub>2</sub>CO), m. 120-1°. If the substance, however, is shaken in Et<sub>2</sub>O with 1-2% HCl at 20° only the MeO group of ring C is attacked. Thus, III (R = H, R' = MeO) gave 63% 2-exo-9,10-dihydroxy-9,10-dimethyl-1,2,3,4,4a,9,9a,10-octahydroanthracene, m. 135-6°. G. M. Kosolapoff

4/4  
1/1/64

PM  
MT

1. Chlen-korrespondent A.N. SSSR (P)
2. Institut Biologicheskoy i meditsinskoy Khimii Akademii meditsinskikh nauk. SSSR.



CHAMAN YE. S.

PHASE I BOOK EXPLOITATION

SOV/3950

Reaktsii i metody issledovaniya organicheskikh soyedineniy, kn. 9 (Reactions and Investigation Methods of Organic Compounds, Bk. 9) Moscow, Goskhimizdat, 1959. 381 p. Errata slip inserted. 4,000 copies printed.

Eds. (Title page): V.M. Rodionov, Academician (Deceased), B.A. Kazanskiy, Academician, I.L. Knunyants, Academician, M.M. Shemyakin, N.N. Mel'nikov, Professor; Eds. (Inside book): V.P. Yevdakov and V.P. Parini; Tech. Ed.: V.F. Zazul'skaya.

PURPOSE: This book is intended for industrial chemists, aspirants, teachers, and students of higher educational institutions interested in methods of synthesizing organic compounds.

COVERAGE: The collection contains 3 monographic survey articles which review some of the more interesting and important problems in the synthesis of indole derivatives and oxazolones (azlactones) and the bromination of organic compounds with N-bromosuccinimide. Figures, tables, and references accompany each article. No personalities are mentioned.

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Reactions and Investigations (Cont.)

SOV/3950

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Reactions and Investigations (Cont.)

SOV/3950

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5(3)

AUTHORS:

Shemyakin, M. M., Denisova, L. I.,  
Chaman, Ye. S.

SOV/62-59-4-19/42

TITLE:

Investigations in the Field of the  $\alpha$ -Substituted  $\alpha$ -Amino Acids  
(Issledovaniya v oblasti  $\alpha$ -zameshchennykh  $\alpha$ -aminokislot).  
Communication 5. Methods of Preparing Substituted  $\alpha, \alpha$ -Diamino-  
carboxylic Acids (Soobshcheniye 5. Sposoby polucheniya zame-  
shchennykh  $\alpha, \alpha$ -diaminokarbonovykh kislot)

PERIODICAL:

Izvestiya Akademii nauk SSSR. Otdeleniye khimicheskikh nauk,  
1959, Nr 4, pp 690-694 (USSR)

ABSTRACT:

In the present work it has been confirmed that various  
 $\alpha, \alpha$ -diamino acids can easily be obtained in the form of deriv-  
atives by the method recently proposed (Refs 20-23). This  
has made the production of many of these acids possible. It  
has been found that a quick reaction of the aniline used in  
the reaction (aniline, benzylamine, piperidine) with the  
oxazolinone ring makes it possible for this amine to act  
directly on the intermediate product, bromooxazolinine (III).  
This gives the corresponding amides of  $\alpha$ -amino- $\alpha$ -acylamino-  
carboxylic acids of type (IV) in a good yield (Schemes (I)  $\rightarrow$   
(II)  $\rightarrow$  (III)  $\rightarrow$  (IV) and Tables 1 and 2).

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Investigations in the Field of the  $\alpha$ -Substituted SOV/62-59-4-19/42  
 $\alpha$ -Amino Acids. Communication 5. Methods of Preparing Substituted  
 $\alpha,\alpha$ -Diaminocarboxylic Acids

If the amine used opens the oxazolinone ring only slowly, secondary reactions (polymerization, resinification) are observed, whereby the yield of the final compound is reduced. In some cases (IV) cannot be precipitated at all in individual form (Table 1). In these cases the oxazolinone ring must be opened first by another reagent. The corresponding esters of  $\alpha$ -amino- $\alpha$ -acylamino-carboxylic acids (VI) can be synthesized in a satisfactory yield if 1 mole of any alcohol (or mercaptan) is previously caused to act on bromooxazolinone (III). These compounds may also be synthesized with such amines (aniline, benzylamine, piperidine, etc) as are suitable for the synthesis of amides of type (IV). (Schemes (I)  $\rightarrow$  (II)  $\rightarrow$  (III)  $\rightarrow$  (V)  $\rightarrow$  (VI) and Table 2). It must be mentioned that this reaction is accompanied by secondary conversions in some cases. Another synthesis of the substituted  $\alpha,\alpha$ -diamino-carboxylic acids has been found during an investigation of the properties of  $\alpha$ -hydroxy- $\alpha$ -acylamino acids (VIII). It has been found that these acids can be converted into  $\alpha,\alpha$ -di-(acylamino) acids (IX) when heated with acid amides. Some of these

Card 2/3

Investigations in the Field of the  $\alpha$ -Substituted SOV/62-59-4-19/42  
 $\alpha$ -Amino Acids. Communication 5. Methods of Preparing Substituted  
 $\alpha,\alpha$ -Diaminocarboxylic Acids

acids have been synthesized by this method (Table 2). There are 2 tables and 26 references, 6 of which are Soviet.

ASSOCIATION: Institut biologicheskoy i meditsinskoy khimii Akademii meditsinskikh nauk SSSR (Institute of Biological and Medical Chemistry of the Academy of Medical Sciences, USSR), Moskovskiy tekstil'nyy institut (Moscow Textile Institute)

SUBMITTED: July 13, 1957

Card 3/3

5.3400,5.3600,5.3610

77077

SOV/62-59-12-21/43

AUTHORS: Shemyakin, M. M., Ravdel', G. A., Chaman, ~~E. S.~~,  
Shvetsov, Yu. B., Vinogradova, E. I., ~~Vdovina, R. G.~~,  
Yermolayev, K. M., Bamdas, E. M.

TITLE: Studies in the Field of Sarcomycine and Its Analogs.  
Communication 4. Study of Synthetic Routes to Sar-  
comycine and Its Analogs

PERIODICAL: Izvestiya Akademii nauk SSSR. Otdeleniye khimicheskikh  
nauk, 1959, Nr 12, pp 2177-2187 (USSR)

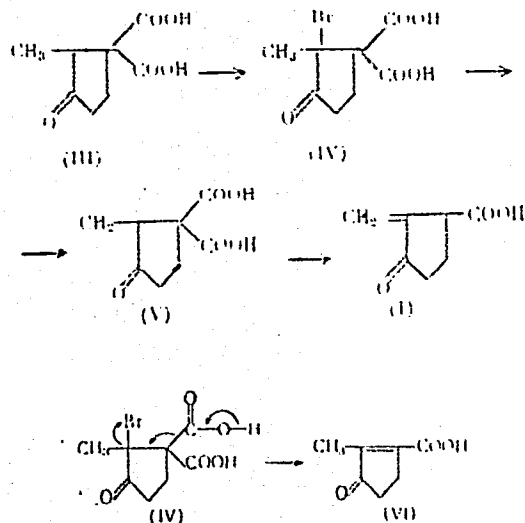
ABSTRACT: 2-Methylcyclopentan-3-one-1,1-dicarboxylic acid (III)  
was used for the preparation of (Sarcomycine) 2-methyl-  
ene-cyclopentanone-3-carboxylic acid (I). (III) was  
assumed to be converted into (V) by bromination. It  
seemed possible to synthesize (I) from (V) by removal  
of HBr and by decarboxylation. Diacid (V) could not  
be obtained because elimination of HBr from (IV) and  
simultaneous decarboxylation formed (VI) with an  
endocyclic double bond.

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Studies in the Field of Sarcomycine and Its Analogs. Communication 4. Study of Synthetic Routes to Sarcomycine and Its Analogs

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SOV/62-59-12-21/43

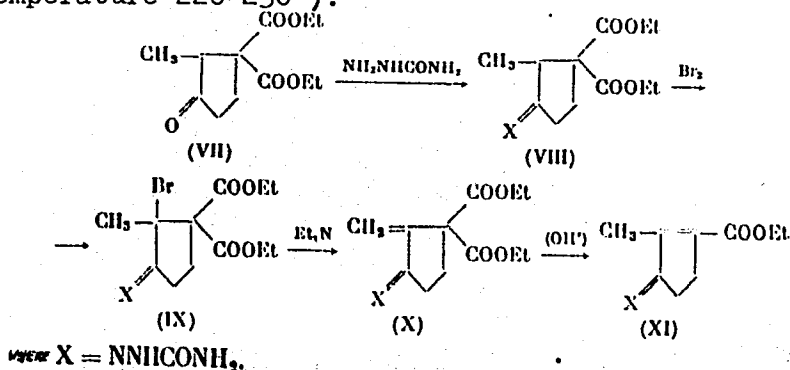


Card 2/10

Studies in the Field of Sarcomycine and Its Analogs. Communication 4. Study of Synthetic Routes to Sarcomycine and Its Analogs

77077  
SOV/62-59-12-21/43

The semicarbazone of the diethyl ester of 2-methylcyclopentan-3-one-1,1-dicarboxylic acid (VII) was brominated, and after eliminating HBr the semicarbazone of the diethyl ester of 2-methylenecyclopentan-3-one-1,1-dicarboxylic acid (X) was obtained in 56% yield (mp 207-209°). Diester (X) was saponified and the semicarbazone of the ethyl ester of 2-methylcyclopenten-1-one-3-carboxylic acid (XI) was obtained, in 74% yield (dec. temperature 220-230°).

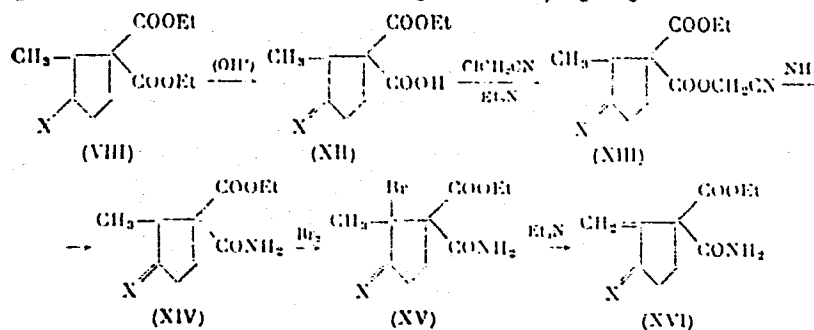


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Studies in the Field of Sarcomycine and Its Analogs. Communication 4. Study of Synthetic Routes to Sarcomycine and Its Analogs

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SOV/62-59-12-21/43

Attempts were made to convert the semicarbazone of the amide of 1-carbethoxy-2-methylcyclopentanene-3-carboxylic acid (XIV) into the semicarbazone of the amide of 1-carbethoxy-2-methylenecyclopentanone-3-carboxylic acid (XVI), but the isolated compound (XVI) was not pure and contained from 30 to 40% polymeric material.



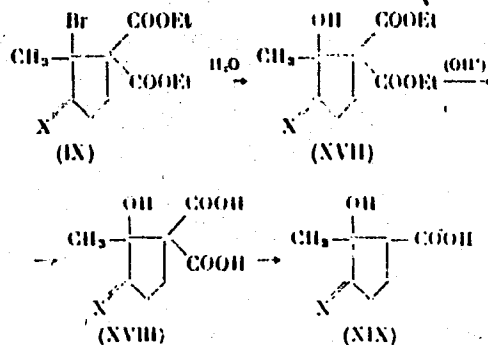
Card 4/10

Studies in the Field of Sarcomycine and Its Analogs. Communication 4. Study of Synthetic Routes to Sarcomycine and Its Analogs

77077

SOV/62-59-12-21/43

Semicarbazone of the diethyl ester of 2-methylcyclopentan-2-olone-3-carboxylic acid (XVII) was obtained, in 81% yield (mp 160-161°), from (IX) by reaction with water. Semicarbazone of 2-methylcyclopentan-2-olone-3-carboxylic acid (XIX) was prepared in 38% yield (mp 187-188°) by saponification of (XVII) and by subsequent decarboxylation of the intermediate (XVIII).

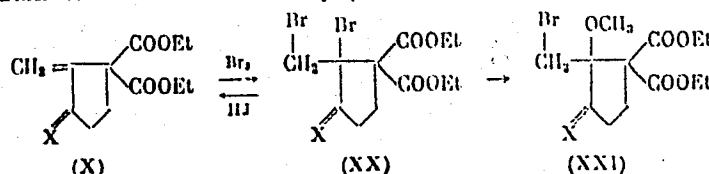


Card 5/10

Studies in the Field of Sarcomycine and Its Analogs. Communication 4. Study of Synthetic Routes to Sarcomycine and Its Analogs

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SOV/62-59-12-21/43

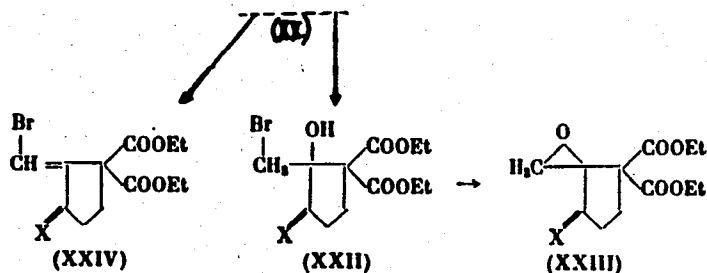
Dibromide (XX) was obtained quantitatively (mp 82-85° dec.) by addition of two bromine atoms to the diester (X). In the compound (XX) one bromine atom (position 2) is very labile. (XX) reacts with CH<sub>3</sub>OH or H<sub>2</sub>O forming corresponding compounds (XXI) in 65% yield (mp 138-139°) or (XXII) in 83% yield (mp 148-149°). The labile bromine atom in compound (XX) can quantitatively oxidize KI to free iodine, in the cold, but the obtained product can not be isolated, because the reaction is accompanied by elimination of HBr and formation of diester (X) in 71% yield (mp 207° dec.).



Card 6/10

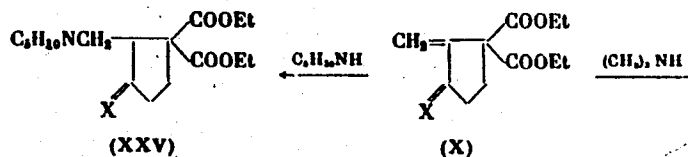
Studies in the Field of Sarcomycine and Its Analogs. Communication 4. Study of Synthetic Routes to Sarcomycine and Its Analogs

77077  
SOV/62-59-12-21/43



where X = NNHCONH<sub>2</sub>.

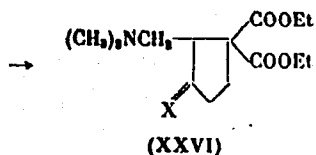
Compound (X) was converted into corresponding amines (XXV), in 17% yield (mp 124-126°), and (XXVI), in 62% yield (m p 160-161°), according to the reaction:



Card 7/10

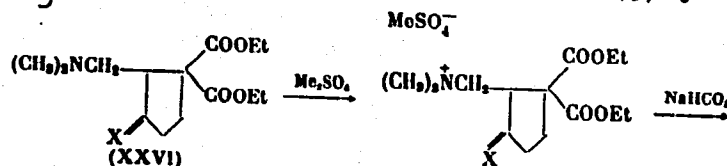
Studies in the Field of Sarcomycine and Its Analogs. Communication 4. Study of Synthetic Routes to Sarcomycine and Its Analogs

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SOV/62-59-12-21/43



where X = NNHCONH<sub>2</sub>.

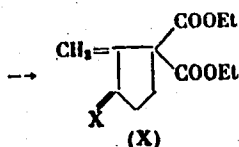
Amine (XXVI) reacted with (CH<sub>3</sub>)<sub>2</sub>SO<sub>4</sub>, in the presence of NaHCO<sub>3</sub>, and diester (X) was obtained in 75% yield.



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where X = NNHCONH<sub>2</sub>.

The synthesis of (I) may take place as follows: amines of (XXV-XXVI)-type, after hydrolysis, decarboxylation, and formation of the methylene group, can be converted into (I). The results of investigation will be published in a forthcoming communication. There are 9 references, 3 Soviet, 1 German, 2 Japanese, 1 U.K., 2 U.S. The 3 U.S. and U.K. references are: Chem. and Industr. 1957, 1320; E. J. Corey, J. Amer. Chem. Soc. 75, 1163 (1953); J. R. Hooper, L. C. Cheney et al., Antibiot. and Chemother. 5, 585 (1955).

Card 9/10



Studies in the Field of Sarcomycine and  
Its Analogs. Communication 4. Study of  
Synthetic Routes to Sarcomycine and Its  
Analogs

77077  
SOV/62-59-12-21/43

ASSOCIATION: Institute of Biological and Medical Chemistry, Academy  
of Medical Sciences (Institut biologicheskoy i meditsinskoy khimii Akademii medicinskikh nauk)

SUBMITTED: April 12, 1958; Additions made, December 28, 1958

Card 10/10

5.3400,5.3600,5.3610

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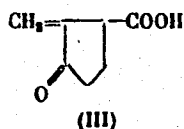
SOV/62-59-12-22/43

AUTHORS: Shemyakin, M. M., Ravdel', G. A. Chaman, ~~/~~E. S., Shvet-  
sov, Yu. B., Vinogradova, E. I.

TITLE: Investigation in the Field of Sarcomycine and Its  
Analog. Communication 5. Synthesis of Racemic Sar-  
comycine

PERIODICAL: Izvestiya Akademii nauk SSSR. Otdeleniye khimicheskikh  
nauk, 1959, Nr 12, pp 2187-2194 (USSR)

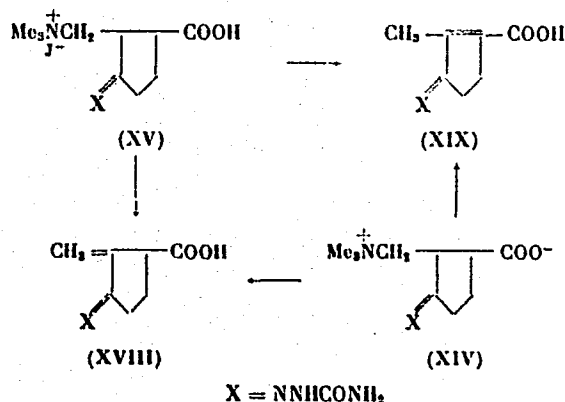
ABSTRACT: Racemic sarcomycine (III) was synthesized in the form  
of its semicarbazone (XVIII).



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Investigation in the Field of Sarcomycine  
and Its Analogs. Communication 5. Synthesis  
of Racemic Sarcomycine

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SOV/62-59-12-22/43



The ethyl ester of 2-dimethylaminomethylcyclopentanone-3-carboxylic acid (XI) was used as starting material for the preparation of (III). Racemic sarcomycine in the form of its semicarbazone (XVII) can be obtained, in 39% yield, from the methiodide of acid (XV) or from betaine (XIV) together with the semicarbazone of 2-methylcyclopenten-1-one-3-carboxylic acid (XIX). For

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Investigation in the Field of Sarcomycine  
and Its Analogs. Communication 5. Synthesis  
of Racemic Sarcomycine

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this purpose (XV) or (XIV) is heated on a water bath for 4 minutes with 2 moles (for betaine 1 mole) of 1N NaOH. The solution was cooled to 0-2°, 10% HCl was added, and after 30 minutes the precipitate was removed by filtration and washed with cold water. The mixture of (XVIII) and (XIX) was obtained in 39% yield. The compound turns black on heating, but does not melt. Found: C 48.87%; H 6.02%.  $C_8H_{11}O_3N_3$ . Calculated: 48.75%; H 5.63%. From the above mixture, the semi-carbazone of racemic sarcomycine (XVIII) was isolated by crystallization, in 50-55% yield. There are 8 references, 3 Soviet, 1 Japanese, 1 U.K., 3 U.S. The 4 U.S. and U.K. references are: Chem. and Industr. 1957, 1320. G. Buchi, N. G. Yang and Others, Chem. and Industr. 1953, 1063; J. Meinwald, S. L. Emerman and others., J. Amer. Chem. Soc. 77, 4401 (1955); E. E. Van Tamelen, S. R. Bach, J. Amer. Chem. Soc. 77, 4683 (1955).

Card 3/4

Investigation in the Field of Sarcomycine  
and Its Analogs. Communication 5. Synthesis  
of Racemic Sarcomycine

77078  
SOV/62-59-12-22/43

ASSOCIATION: Institute of Biological and Medical Chemistry, Academy  
of Medical Sciences (Institut biologicheskoy i meditsin-  
skoy khimii Akademii meditsinskikh nauk)

SUBMITTED: April 12, 1958; Additions made, December 28, 1958

Card 4/4

5 (3)

AUTHORS:

Shemyakin, M. M., Kolosov, M. N.,  
Arbuzov, Yu. A., Karapetyan, M. G.,  
Chaman, Ye. S., Onishchenko, A. A.

SOV/79-29-6-13/72

TITLE:

Investigations in the Field of Tetracyclines (Issledovaniya v oblasti tetratsiklinov). IV. Investigation of Different Syntheses of the Tricyclic System DCB of the Tetracyclines (IV. Izucheniye putey sinteza tritsiklicheskoy sistemy DCB tetratsiklinov)

PERIODICAL:

Zhurnal obshchey khimii, 1959, Vol 29, Nr 6, pp 1831 - 1842 (USSR)

ABSTRACT:

The structure of the well-known tetracyclines (I) has a specific characteristic which indicates the ways and methods necessary for carrying out the complete synthesis of compounds of this type. On the basis of certain theoretical considerations the authors tried to synthesize such ketols of the hydroanthracene series of type (III) and (IV) in which two rings had to be similar with respect to structure and spatial arrangement to the rings D and C of the tetracyclines. The third ring had to offer the structural conditions for the subsequent building-up of the ring A and for the introduction of the necessary func-

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Investigations in the Field of Tetracyclines.  
IV. Investigation of Different Syntheses of the  
Tricyclic System DCB of the Tetracyclines

SOV/79-29-6-13/72

tional groups of the ring B of the tetracyclines. The adopted method of synthesizing these compounds consisted in the condensation of the 1,4-naphthoquinones with butadiene or its derivatives and the transformation of the resultant adducts (II) into the ketols (III) which, on their part, can easily be hydrolyzed to give the oxy-diketones (IV). The first step, the diene synthesis, takes place readily by heating naphthoquinone with the diene. By condensation of the 5-methoxy-naphthoquinone with 2-methoxy-butadiene two isomeric adducts - (II d) and (II e) in the ratio 4 : 1 - are formed. The second step, the selective transformation of the C<sub>9</sub>-keto group of the adducts (II) into the tertiary methyl carbinol grouping meets with some difficulties, it was however possible to carry out the reaction by means of magnesium methyl halide. The third step of the synthesis of the compounds (IV), the hydrolysis of the enol-methoxyl up to the keto group is only possible when using dilute acids. The synthesis of the tricyclines (XV) was thus performed on the basis of naphthoquinones, in which two rings are analogous with the rings D and C of the natural tet-

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Investigations in the Field of Tetracyclines.  
IV. Investigation of Different Syntheses of the  
Tricyclic System DCB of the Tetracyclines

SOV/79-29-6-13/72

racyclines with respect to structure and spatial arrangement. The presence of the reactive double bond, the enol grouping or the carbonyl group in the third ring of the compounds (XV) offers further possibilities for the introduction of substituents and for the building up of the fourth ring of the tetracyclines. There are 12 references, 4 of which are Soviet.

ASSOCIATION: Institut biologicheskoy i meditsinskoy khimii Akademii meditsinskikh nauk SSSR i Institut organicheskoy khimii Akademii nauk SSSR (Institute of Biological and Medical Chemistry of the Academy of Medical Sciences, USSR, and Institute of Organic Chemistry of the Academy of Sciences, USSR)

SUBMITTED: June 9, 1958

Card 3/3



GOLOVCHINSKAYA, Ye.S.; CHAMAN, Ye.S.

Syntheses in the series of isoxanthine derivatives. Part 1:  
Synthesis of dimethylisoxanthine and its 8-chloro derivative  
from 1,3,9-trimethyl-isoxanthine. Zhur.ob.khim. 30 no.6:  
1873-1878 Je '60. (MIRA 13:6)

1. Vsesoyuznyy nauchno-issledovatel'skiy khimiko-farmatsevti-  
cheskiy institut imeni S. Ordshonikidse.  
(Isoxanthine)

CHAMAN, Ye.S.; CHERKASOVA, A.A.; GOLOVCHINSKAYA, Ye.S.

Syntheses in the series of isoxanthine derivatives. Part 2:  
Some amino acid derivatives of methylated xanthine and isoxan-  
thine. Zhur.ob.khim. 30 no.6:1878-1884 Je '60.  
(MIRA 13:6)

1. Vsesoyuznyy nauchno-issledovatel'skiy khimiko-farmatsevti-  
cheskiy institut imeni S. Ordshonikidze.  
(Isoxanthine) (Xanthine) (Amino acids)

GOLOVCHNISKAYA, Ye.S.; CHAMAN, Ye.S.

Syntheses in the series of isoxanthine derivatives. Part 5:  
8-Isocaffeinalmalonic ester and amides of 8-isocaffeinacetic acid.  
Zhur. ob. khim. 30 no.11:3628-3633 N'60. (MIRA 13:11)

1. Vsesoyuznyy nauchno-issledovatel'skiy khimiko-farmatsevticheskiy  
institut imeni S.Ordshonikidse.  
(Isoxanthine)

CHAMAN, Ye.S.; GOLOVCHINSKAYA, Ye.S.

Syntheses in the series of isoxanthine derivatives. Part 6:  
Halogen derivatives of (isocaffeine-8)-malonic ester. Zhur.  
ob.khim. 31 no.8:2645-2650 Ag '61. (MIRA 14:8)

1. Vsesoyuznyy nauchno-issledovatel'skiy khimiko-farmatsevticheskiy  
institut imeni S. Ordzhonikidze.  
(Xanthine)

OVCHAROVA, I.M.; NIKOLAYEVA, L.A.; CHAMAN, Ye.S.; GOLOVCHINSKAYA, Ye.S.

Syntheses in the series of purine derivatives. Part 1: Preparation of 2,6-dichloro-9-methylpurine and synthesis of some derivatives of 1,9-dimethylhypoxanthine. Zhur.ob.khim. 32 no.6:2010-2015 Je '62.

(MIRA 15:6)

1. Vsesoyuznyy nauchno-issledovatel'skiy khimiko-farmatsevticheskiy institut im. S.Ordzhonikidze.

(Purine)

(Hypoxanthine)

CHAMAN, Ye.S.; GOLOVCHINSKAYA, Ye.S.

Syntheses in the series of purine derivatives. Part 2: Isocaffeine-  
8-aldehyde and some of its derivatives. Zhur.ob.khim. 32 no.6:  
2015-2019 Je '62. (MIRA 15:6)

(Xanthine)

GOLOVCHINSKAYA, Ye.S.; CHAMAN, Ye.S.

Syntheses in the series of purine derivatives. Part 3.  
Some conversions of 8-chloromethylisocaffeine. Zhur.ob.khim.  
32 no.10:3245-3248 0 '62. (MIRA 15:11)

1. Vsesoyuznyy nauchno-issledovatel'skiy khimiko-  
farmatsevticheskiy institut imeni S. Ordshonidze.  
(Purine)  
(Isocaffeine)

GOLOVCHINSKAYA, Ye. S.; MOKHAMMED YASIN EBED; CHAMAN, Ye. S.

Synthesis of theobromine-8-aldehyde and some of its transformations. Zhur. ob. khim. 32 no.12:4097-4098 D '62.  
(MIRA 16:1)

1. Vsesoyuznyy nauchno-issledovatel'skiy khimiko-farmatsevticheskiy institut imeni S. Ordzhonikidze.

(Theobromine)



GOLOVCHINSKAYA, Ye.S.; KOLGANOVA, G.A.; NIKOLAYEVA, L.A.; ~~CHAMAN, Ye.S.~~

Synthesis in the series of purine derivatives. Part 4: Alkaline degradation of 1,3,9-trimethylxanthine derivatives. Zhur. ob. khim. 33 no.5:1650-1654 My '63. (MIRA 16:6)

1. Vsesoyuznyy nauchno-issledovatel'skiy khimiko-farmatsevticheskiy institut imeni S. Ordzhonikidze.  
(Xanthine)

CHAMAN, Ye.S.; GOLOVCHINSKAYA, Ye.S.

Synthesis in the series of purine derivatives. Part 5: Synthesis of some C (6)-substituted derivatives of 9-methylpurine. (MIRA 16:11)  
Zhur.ob.khim. 33 no.10:3342-3349 0 '63.

1. Vsesoyuznyy nauchno-issledovatel'skiy khimiko-farmatsevticheskiy institut imeni S.Ordzhonikidze.

CHAMANS, S. D.  
CHAMANS, S.D., ordinator

Balpash-Sor mud lake. Trudy Inst. Kraev. pat. AN Kazakh SSR 5:  
22-24 '57. (MIRA 11:2)

1. Shchuchinskiy sanatori  
(SHCHUCHINSK DISTRICT--BATHS, MOOR AND MUD)

CHAMANS, S.D., vrach

Case of bilateral tubal pregnancy.. Zdrav.Kazakh. 17 no.2:  
36-37 '57. (MIRA 12:6)

1. Iz khirurgicheskogo otdeleniya Shchuchinskoy rayonnoy bol'-  
nitsy, Kokchetavskoy oblasti.  
(PREGNANCY, EXTRAUTERINE)

CHAMATA, P.R.

Qualitative changes in the development of self-consciousness in  
children. Nauk. zap. Nauk.-dosl. inst. psykhol. 11:226-229 '59.  
(MIRA 13:11)

1. Institut psikhologii, Kiev.  
(Self-consciousness)

CHAMATA, P.R.

Development of psychological science in the Ukrainian S.S.R. for  
forty years. Nauk. zap. Nauk.-dosl. inst. psykhol. 11:294-298 '59.  
(MIRA 13:11)

1. Institut psikhologii, Kiyev.  
(Ukraine—Psychology)

CHAMATA, Pavel Romanovich; NIKOLENKO, D.F., kand.pedagog.nauk, glavnyy  
red.; MYAKUSHKO, V.P. [M'iakushko, V.P.], red.

[Psychological readiness of children for work] Psykholoqichna  
gotovnist' ditei do pratsi. Kyiv, 1960. (Tovarystvo dlia  
poshyrennia politychnykh i naukovykh znan' Ukraini'koi RSR.  
Ser.5, no.24). (MIRA 13:5)

(Children--Employment)

MIZIKIN, S.; CHAMATOV, S. \_\_\_\_\_

Controlling the smoke density and the temperature of the product  
in smokehouses. Mias.ind.SSSR 31 no.5:13-15 '60.

(MIRA 13:9)

(Smokehouses)

(Sausages)



S/081/61/000/024/017/086  
B 138/B102

AUTHORS: Usmanov, Kh. U., Iosilevich, A. I., Ioanidis, O., Chamayev, V.

TITLE: Effect of electric current on the exchange capacity of ion exchangers

PERIODICAL: Referativnyy zhurnal. Khimiya, no. 24, 1961, 100, abstract 24B731 (Uzb. khim. zh., no. 2, 1961, 13 - 17)

TEXT: The effect of direct electric current on total exchange capacity was studied in the cationites, KY-1 (KU-1), KY-2 (KU-2), KB-4-Π2 (KB-4-P2) and anionites AH-2φ (AN-2F), AH-9φ (AN-9F), ЭВЭ-10Π (EDE-10F), H-O(N-O) and ММГ-1 (MMG-1). In the conditions under review electric current appeared to have no direct effect on the capacity of these resins. This means that ion exchange resins can be used in such electro-chemical processes as sorption, concentration and desorption. In a number of cases it was found that, under the effect of the current, processes occurred which were related with ion discharge and gas formation. This caused variation in the exchange capacity of the ion exchangers. The results set out require some elaboration for the choice of ion exchangers  
Card 1/2

Effect of electric current on the ...

S/081/61/000/024/017/086  
B138/B102

and conditions for chemical processes to be carried out on them.  
[Abstracter's note: Complete translation.]



Card 2/2

TOROPOV, A.P.; CHAMAYEV, V.N.

Study of the conditions for the formation of ideal systems.  
Izv.vys.ucheb.zav; khim.i khim.tekh. 4 no.5:738-742 '61.

(MIRA 14:11)

1. Tashkentskiy gosudarstvennyy universitet, kafedra fizi-  
cheskoy khimii.

(Systems (Chemistry))

CHAMBADAL, Paul; ZARIC, Dragutin, inz. [translator]

Electric power production by gas turbines. Elektroprivreda 16  
no.8:356-366 Ag '63.

1. Sef Odeljenja za tehnicka istrazivanja u Electricite de  
France (for Chambadal). 2. Clan Redakcionog odbora, "Elektro-  
privreda" (for Zaric).

CHAMBERLAIN, Owen

Detection of antiproton. Fiz szemle 12 no.11:337-343 N '62.

CHAMBON, P.; KARON, H.; MANDEL, P.

Free nucleotides in the erythrocytes in rats after xOirradiation.  
Acta physiol.polon.11 no.5/6:669 '60.

1. Z Zakladu Chemii Fizjologicznej A.M. w Poznaniu, Kierownik:  
prof.dr Z.Stolsmann. Z Instytutu Biochemii w Strassburgu, Kierownik:  
prof.dr P. Mandel.

(RADIATION INJURY exper)  
(NUCLEOSIDES AND NUCLEOTIDES blood)  
(ERYTHROCYTES radiation eff)

**CHAMBERE, Attila**

Space flight and frogmen. Elet tud 18 no.21:642 26 My '63.

CHAMCOWNA, MIROSLAWA.

Uniwersytet Jagiellonski w dobie Komisji Edukacji Narodowej; Szkoła Główna  
Koronna w latach 1786-1795.

(Wyd. 1.) Wrocław, Poland      Zakład Narodowy im. Ossolińskich, 1959. 259 p.

Monthly List of East European Accessions, (EEAI) LC, Vol. 9, No 1, Jan. 1960  
Uncl.



CHAMIDULLINA, A.Ch.

Certain properties of the autonomic nervous system activity in normal children. *Cesk.pediat.* 16 no.3:228-233 Mr '61.

1. Katedra nemocnici pediatrie, vedouci katedry E.N.Korovajev,  
Kazanskeho lebarskeho institutu, red. R.A.Vjaselev.  
(AUTONOMIC NERVOUS SYSTEM physiol)

GHAMIDULLINA, A.Ch.

Autonomic nervous function in children with toxicoses. Cesk.pediat.  
16 no.3:234-237 Mr '61.

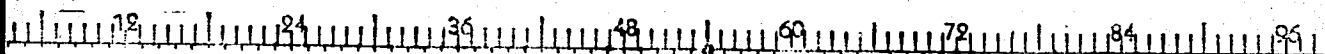
1. Katedra nemocnici pediatrie, ved. prof. E.N. Korovajev,  
Kazanskeho med. institutu, řed. R.A. Vjaselev.  
(AUTONOMIC NERVOUS SYSTEM physiol)  
(INFANT NUTRITION DISORDERS physiol)

CHAMIN, A. A.

"ACH<sup>2</sup> Lime Slaker," Byul. Stroy. Tekh., 9, No 16, 1952

CHAMIN, A.A., inzhener.

Lime-slaking machine ACh-2. Mekh.stroi. 10 no.5:27-29 My '53. (MLRA 6:6)  
(Building machinery)



18.5100

S/130/60/000/04/03/006

AUTHORS: Tokar', I.K., and Chamin, I.A.  
 TITLE: New Lubricants for Cold Rolling of Strips  
 PERIODICAL: Metallurg, 1960, No. 4, pp. 28 - 29

TEXT: Experiments conducted by TsNIChM, - in which participated I.D. Samoylov, V.A. Gamershteyn of Zaporozhstal' Plant, I.I. Yelin, F.S. Lednikov, I.A. Ostrovskiy, Ye.M. Kontsvaya of Serp i Molot Plant, M.A. Leychenko, V.V. Zaytsev, V.D. Kolomatskiy (TsNIChM), - have shown that vegetable and animal fats are closely resembling palm oil as far as physico-chemical properties are concerned and can therefore replace the latter. In view of the fact that animal fats are liable to oxidize quickly at high temperatures, in a moist medium and in the presence of metal, these can only be used in connection with cold rolling with the addition of antioxidants. TsNIChM in cooperation with VNIIMP has developed a number of lubricants on the basis of animal fats for cold rolling of thin low carbon (0.1%C) steel strips. Experiments permitted to make the following conclusions: almost all lubricants made from animal fat produced greater metal elongation during cold rolling than palm oil, best results were obtained with VNIIMP No. 2 and No. 6 lubricants made from suet with an addition of 3-5% of free fatty acids. For harder

Card 1/2

New Lubricants for Cold Rolling of Strips

S/130/60/000/04/03/006

working conditions tests were conducted on the 222/600x650 mm rolling mill of Zaporozhstal' Plant with a rolling rate of 72 m/minute. The new lubricant proved more effective than palm oil, resulting in less friction between metal and working rollers, less load on the motor, less pressure of the metal on the rollers and less resistance of the metal to deformation, while the quality of the metal remained unchanged. The laboratory of the All Union Thermo-Technical Institute under the supervision of Professor K.I. Ivanov has developed a certain number of strong anti-oxidizers for animal fats, of which the most effective is yanol (0.4% of fat) in conjunction with intensifier VTI-8 (0.02%). Using animal fat it requires 5 passes to roll a strip 0.4 mm thick from a 1.0 mm band while it takes 6 passes with an emulsion of mineral oil. In all instances of cold rolling of strips discussed in the article, it is pointed out by the author that it takes fewer passes to obtain a strip of the same thickness by using animal fat than it does when using mineral fat or stearin. Serp\_i Molot Plant has considerably intensified their process of cold rolling with lubricants from animal fat, especially in turning out thin (0.5 mm) strips of stainless metal. The use of animal fat lubricants decreases the number of thermal and etching operations required, which reduces the consumption of metal during etching and annealing. There is 1 graph.

Card 2/2

S/130/61/000/008/002/005  
A006/A101

AUTHORS: Tokar', I. K.; Chamin, I. A.

TITLE: Efficient greases in rolling thin tin plate

PERIODICAL: Metallurg, no. 8, 1961, 22-24

TEXT: An investigation was made at TsNIChM and the Zaporozhstal' plant to determine the effect of various surface-active greases (palm oil, castor oil, etc.) in rolling steel strips and plate on a four-high rolling mill. The study was carried out with the participation of M. V. Boyko, G. F. Chub, V. A. Gamershteyn, D. I. Yashnikov, V. A. Filonov, N. A. Troshchenko, I. D. Samoylov (Zaporozhstal' Plant), V. V. Zaytsev, V. D. Kolomatskiy (TsNIChM). It was found that during the rolling of strips with the use of castor oil, the external friction coefficient decreased with greater reduction and cold working of the strip, and that within a reduction range up to 20% and over 50% and a specific load up to 80 kg/mm<sup>2</sup> the friction coefficient and the deformation resistance of the metal increased. The rolling process is stable at a load over 80 kg/mm<sup>2</sup>. If the specific load on the rolls exceeds 130 kg/mm<sup>2</sup>, the rolling process becomes unstable. The range of stable process is 10 to 40% reduction for palm oil, and

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## Efficient greases in rolling thin tin plate

S/130/61/000/008/002/005  
A006/A101

up to 50% reduction for castor oil. This is different for mineral oil and water emulsions. The critical reduction range per pass, when an abrupt increase of the metal deformation resistance takes place, is within 20 - 30% reduction at 100 kg/mm<sup>2</sup> specific load. The established regularities are of great practical importance. Previously, when rolling with a low-efficient emulsion, the rolling conditions were established on the assumption that the relative reduction decreased during the final pass and did not exceed 5 - 10%. When using surface active greases, reduction in the final pass was raised thus making it possible to eliminate one pass and to raise the efficiency of single-stand mills by 30 - 40%. The use of surface active greases reduced specific pressure on the rolls so that 0.8 mm thick metal can be used instead of 0.6 mm thick metal. The total deformation of strips was also increased by the new greases, so that thinner tin plate (up to 0.20 mm thick) can be produced. Presently, at Zaporozhstal' 0.20 - 0.25 mm thick tin plate is rolled on a single-stand mill from annealed 0.6 mm thick metal by two passes and by three passes on a continuous mill. Plate of 0.28 mm thickness is rolled from nonannealed metal in two passes. The experimental investigation has shown that the use of surface-active greases instead of water emulsion, permits the rolling of tin plate with higher partial and total reduction, and a

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Efficient greases in rolling thin tin plate

S/130/61/000/008/002/005  
A006/A101

reduction of passes from three to two. It is recommended to introduce such greases in other metallurgical plants. There is 1 figure.

ASSOCIATION: TsNIICM

Card 3/3

SKRIPCHENKO, Ye.S., kand.tekhn.nauk; CHAMIN, I.A.

Water emulsions for cold rolling of steel strips. Masl.-zhir.  
prom. 27 no.11:31-32 N '61. (MIRA 15:1)

1. Moskovskiy filial Vsesoyuznogo nauchno-issledovatel'skogo  
instituta zhirov (for Skripchenko). 2. Institut novoy  
metallurgicheskoy tekhnologii imeni I.P. Bardina (TsNIChM)  
(for Chamin).

(Sheet steel—Cold working)  
(Emulsifying agents)

3  
S/137/62/000/010/006/028  
A052/A101

AUTHORS: Afanas'yev, I. D., Dobkin, I. Ye., Sazanova, M. N., Soltan, S. G.,  
Garzanov, G. Ye., Tokar', I. K., Chamin, I. A., Belosovich, V. K.,  
Pavlov, I. M.

TITLE: The effect of substances with a lower surface tension in the  
composition of synthetic lubricants on the cold rolling of  
thin metal strips

PERIODICAL: Referativnyy zhurnal, Metallurgiya, no. 10, 1962, 8,  
abstract 10D46 ("Novosti neft. i gaz. tekhn. Neftepерerabotka i  
neftekhimiya", no. 4, 1962, 23 - 27)

TEXT: The data on the effect of various technological lubricants on the  
cold rolling of strips on a two- and four-high mill are cited. Synthetic greases,  
- esters of saturated synthetic fatty acids, - reduce the friction and the re-  
sistance of metal to deformation at rolling of carbon steel and Ti (BT-1-T)  
(VT-1-T) strips more effectively than animal fat, palm oil, mineral oils etc.  
Synthetic lubricants, due to their low costs and good lubricating quality, should  
be recommended for an extensive testing on cold rolling mills.  
Card 1/2

CHAMIN, I.A., inzh.; TOKAR', I.K., inzh.; ZAYTSEV, V.V., inzh.

Cold rolling of sheet steel with use of surface active metal-working lubricants. Sbor. trud. TSNIICHM no.28:7-23 '62.

(MIRA 15:11)

(Rolling (Metalwork)) (Metalworking lubricants)

CHAMIN, I.A., inzh.; TOKAR', I.K., inzh.; BAUMAN, V.N., inzh.

Investigating the lubricating capacity of ultra-dispersed metal-working lubricants. Sbor. trud. TSNIICM no.28:24-34 '62.

(MIRA 15:11)

(Metalworking lubricants--Testing)

ACCESSION NR: AT4014064

S/3072/83/000/000/0097/0101

AUTHOR: Chamin, I. A.; Belosevich, V. K.; Chamin, Yu. A.; Shakhov, V. L.; Pavlov, I. M.; Pedos, I. F.

TITLE: Extract from an article on lubrication in cold sheet rolling

SOURCE: Fiz. -khim. zakonornosti deystviya smazok pri obrabotke metallov davleniyem. Moscow, Izd-vo AN SSSR, 1963, beginning with "V SSSR na neskol'ky\*kh..." on page 97 through page 101

TOPIC TAGS: cold rolling lubricant, cold rolling, lubricant, palm oil substitute, mineral oil, animal fat, vegetable fat, castor oil

ABSTRACT: In several Soviet plants investigations have been made on replacement of palm oil as lubricant in sheet rolling by domestic substitutes on the basis of vegetable and animal fats, and by lubricants on the basis of synthetic fatty acids. In one plant, the standard mineral emulsion B has been used on the rolling mill 220/600 x 650 for cold sheet rolling. On the basis of the investigations, the mineral emulsion has been replaced by more efficient technological lubricants. Palm oil, castor oil, and beef tallow were investigated. In another case, palm oil, artificial solid fat (Salomas, obtained as the result of action of chemical compounds from oils), and castor oil have been tried and compared as lubricants on the continuous

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ACCESSION NR: AT4014064

rolling mill 244/600 x 650. Positive results have been obtained, resulting in a production rise of 30-40%. Similar experiments have been conducted on the four-high reversible rolling mill 180/600 x 650 for stainless steel 1 Kh 18N9T (Ya/I) cold strip rolling. In this case, water based mineral oil emulsion, B-106 stearin, B-99 table fat, and beef tallow have been used as technological lubricants. The conclusion has been made that, by applying effective lubricants, the manufacturing cycle of thin stainless strips will be considerably reduced by reducing the number of heat treatment and pickling operations. However, because of scarcity of fats of organic origin, further development has been directed toward finding synthetic compounds structurally similar to animal fats. During trial runs of a five-unit rolling mill 1200, lubricants on the base of vegetable fats have been tried out and compared with palm oil. 9000 tons of sheet, 98% of acceptable quality, have been rolled on castor oil at a specific oil consumption of 2.8 kg/ton. More than 6000 tons have been rolled on artificial solid fat. During these tests, castor oil has been the most effective lubricant, requiring the least power. Processes of annealing, descaling, pickling, and tinning have not created difficulties during manufacture of strips, and the quality of sheet has not been impaired by the lubricant. With regard to the search for new synthetic technological lubricants in cold rolling, a substantial disadvantage exists: the lack of emulsions which are inexpensive and more efficient

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ACCESSION NR: AT4014064

than such of mineral oils. From the given review it has been concluded that addition of fats to mineral emulsions has only a slight if any improving effect on the lubricating properties; and that emulsions on the basis of fats or their equivalent substitutes are either expensive or are unstable and insufficiently effective. Orig. art. has: 4 tables.

ASSOCIATION: none

SUBMITTED: 00

DATE ACQ: 19Dec64

ENCL: 00

SUB CODE: MM, IE

NO REF SOV: 007

OTHER: 008

Card 3/3



GAMERSHTEYN, V.A., inzh.; LITVINENKO, V.G., inzh.; ~~Prinimali~~ uchastiye:  
FILONOV, V.A., inzh.; KSENDZUK, P.A., inzh.; SAMOYLOV, I.D.,  
inzh.; VERBITSKIY, A.I., inzh.; YASHNIKOV, D.I., inzh.;  
LEYCHENKO, M.A., kand. tekhn. nauk; CHAMIN, I.K., teknik;  
TOKAR', P.K., inzh.; ZAYTSEV, P.P., inzh.

Mastering the production of cold-rolled sheets. Met. i gornorud.  
prom. no.6:72-74. N-D '62. (MIRA 17:8)

1. Zavod "Zaporozhstal'" (for Gamershteyn, Litvinenko, Filonov,  
Ksendzuk, Samoylov, Verbitskiy, Yashnikov). 2. Tsentral'nyy  
nauchno-issledovatel'skiy institut chernoy metallurgii im.  
Bardina (for Leychenko, Chamin, Tokar', Zaytsev).

CHAMIN, N.

Refractometric control of the salting out of enzyme preparations.  
Mias. ind. SSSR 34 no.4:18-21 '63. (MIRA 16:10)

1. Leningradskiy ordena Trudovogo Krasnogo Znameni myasnoy  
kombinat imeni S.M. Kirova.

MANOYLOV, S.Ye.; CHAMIN, N.N.; DOBRYNINA, T.I.; VOSKOBOYNIKOV, G.V.

Isolation of crystalline catalase from horse erythrocytes and the study of some of its physicochemical properties. Biokhimiia 26 no.3:408-411 My-Je '61. (MIRA 14:6)

1. Chair of Biochemistry, Chemo-Pharmaceutic Institute, Leningrad.  
(CATALASE) (ERYTHROCYTES)

CHAMIN, N.N.; DOBRYNINA, T.I.

Separation of an amorphous and crystalline catalase from waste products of blood serum production. Trudy Len.khim.-farm.inst. no.13:11-14 '62. (MIRA 15:10)

1. Laboratoriya enzimologii pri kafedre biokhimii (zav. prof. S.Ye. Manoylov) Leningradskogo khimiko-farmatsevticheskogo instituta.

(CATALASE)

CHAMIN, N.N.; BEZBORODOVA, S.I.

Production of an amorphous and crystalline trypsin. Trudy Len.khim.-  
farm.inst. no.13:15-19 '62. (MIRA 15:10)

1. Laboratoriya enzimologii (zav. prof. Manoylov, S.Ye.) Leningrad-  
skogo khimiko-farmatsivticheskogo instituta.  
(TRYPSIN)

BEZBORODOVA, S.I.; CHAMIN, N.N.

Study of the kinetics of the hydrolysis of casein by crystalline trypsin applicable to a method for determining its activity.  
Trudy Len.khim.-farm.inst. no.13:20-27 '62. (MIRA 15:10)

1. Kafedra biokhimii (zav. prof. S.Ye.Manoylov) Leningradskogo  
khimiko-farmatsevticheskogo instituta.  
(HYDROLYSIS) (TRYPSIN) (CASEIN)

KOMOV, V.P.; CHAMIN, N.N.

Conductometric control of the salting-out of chymotrypsinogen and trypsin. Trudy Len.khim.-farm.inst. no.13:28-32 '62.

(MIRA 15:10)

1. Laboratoriya enzimologii pri kafedre biokhimii (zav. prof. S.Ye.Manoylov) Leningradskogo khimiko-farmatsevticheskogo instituta.

(SALTING-OUT)

(CHROMOTRYPSINOGEN) (TRYPSIN)

MANOYLOV, S.Ye.; CHAMIN, N.N.; DASHKEVICH, L.B.; VOLOKHONSKIY, A.G.;  
PUSTOSHKIN, G.I.

Synthesis of some derivatives of adenine. Trudy Len.khim.-farm.  
inst. no.13:49-54 '62. (MIRA 15:10)

1. Kafedra biokhimi (zav. prof. S.Ye.Manoylov) Leningradskogo  
khimiko-farmatsevticheskogo instituta.  
(ADENINE)



L 4126-66 EWT(m)/EPT(c)/T DJ  
 ACC NR: AP5024389 SOURCE CODE: UR/0286/65/000/015/0068/0068

INVENTOR: Skripchenko, Ye. S.; <sup>77.55</sup>Naumenko, P. V.; <sup>77.55</sup>Podol'skaya, N. I.; <sup>77.55</sup>Orlova, K. I.;  
<sup>77.55</sup>Balagin, I. S.; <sup>77.55</sup>Sventokhovskaya, V. K.; <sup>77.55</sup>Dyuzhev, I. R.; <sup>77.55</sup>Sorochenko, S. I.; <sup>77.55</sup>Klimovich,  
<sup>77.55</sup>V. V.; <sup>77.55</sup>Chernov, Y. S.; <sup>77.55</sup>Kabanov, E. A.; <sup>77.55</sup>Farinitskiy, D. I.; <sup>77.55</sup>Levtsev, V. V.; <sup>77.55</sup>Tokar',  
<sup>77.55</sup>I. K.; <sup>77.55</sup>Znachenkaya, G. A.; <sup>77.55</sup>Koritskiy, G. K. <sup>77.55</sup>

ORG: none 82  
 B

TITLE: Method of obtaining liquid lubricant-coolant for rolling thin steel strips.  
 Class 23, No. 173369

SOURCE: Byulleten' izobreteniy i tovarnykh znakov, no. 15, 1965, 68

TOPIC TAGS: lubricant, coolant, liquid lubricant, rolling lubricant, cold rolling,  
 strip rolling

ABSTRACT: This Author Certificate introduces a method for the preparation of a liquid  
 coolant-lubricant based on methylenebisamide of synthetic fatty acid used, for  
 instance, in rolling thin transformer or stainless-steel strips. To obtain a stable  
 lubricant which would make it possible to roll the strips to a required thickness, an  
 alkylsulfonate, alkylarylsulfonate, or hydroxyethyl amine of fatty acid containing five  
 hydroxy radicals is added to the methylenebisamide of synthetic fatty acid. In a  
 variant, the specified components are melted and then emulsified in water. [A]

SUB CODE: PP, MW, IE/SUBM DATE: 21 Jun 61/ ORIG REF: 000/ OTH REF: 000/ ATD PAGES: 1/28  
 Card 1/1/114 UDC: 621.822:621.7.016.3

38702

S/598/62/000/007/029/040  
D217/D307

11300

AUTHORS: Pavlov, I. M., Belosevich, V. K. and Chamin, Yu. A.

TITLE: Cold rolling of commercially pure titanium as compared with rolling of steel and aluminum

SOURCE: Akademiya nauk SSSR. Institut metallurgii. Titan i yego splavy. no. 7, Moscow, 1962. Metallokhimiya i novyye splavy, 213-218

TEXT: Commercially pure titanium BTIT (VTIT), steel 08KП (08KP) and aluminum A (A) were used in this study. The lubricants used were vegetable and animal fats, synthetic products of similar composition (nos. 142, 151), and mineral oils, both in the pure state and with additions (paste 59C (59S)). The influence of standard lubricants on the parameters of rolling in passes with fixed roll positions is discussed. The authors recommend new synthetic lubricants of the complex ether type for cold-rolling of Ti. Their use enables the number of passes or the number of intermediate annealing processes to be reduced, whilst retaining

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Cold rolling of ...

S/598/62/000/007/029/040  
D217/D307

the properties of the metal. Cold-rolling of technically pure Ti with a total reduction of up to 50% is possible, which enables sheet in the cold worked condition to be manufactured, as in the case of stainless steel. The surface quality of Ti sheet produced by a given set of rolls can be regulated by the use of various lubricants. There are 3 figures and 2 tables.

✓

Card 2/2

37691

S/509/62/000/009/010/014  
D207/D308

15.6700(4409)

AUTHORS: Pavlov, I. M., Belosevich, V. K. and Chamin, Yu. A.

TITLE: Investigating the effect of technical lubrication on the cold rolling of titanium

SOURCE: Akademiya nauk SSSR. Institut metallurgii. Trudy, no. 9, Moscow, 1962. Voprosy plasticheskoy deformatsii metalla, 147-158

TEXT: Commercial titanium BT-1 (VT-1) and steel 08K1 (08KP), both of 1.2 mm. thickness, were cold-rolled using one of 30 lubricants of the following types: vegetable oils, animal fats, surface-active agents, mineral oils of various viscosities and purities, mineral oils with surface-active additives, and complex synthetic esters. It was found that the lubricants suitable for steel were also suitable for titanium. The most effective lubricants for cold rolling of titanium were natural animal fats, high-molecular saturated fatty acids, and complex synthetic esters. Some vegetable oils and emulsions used in ultrasonic machining were also recom-

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